

REMARKS

The present Amendment amends claims *** and leaves claims *** unchanged. Therefore, the present application has pending claims 1 and 4-10.

35 U.S.C. §112 Rejections

Claims 1, 5-7 and 9 stand rejected under 35 U.S.C. §112, second paragraph as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention. This rejection is traversed for the following reasons. Applicants submit that claims 1, 5-7 and 9, as now more clearly recited, are in compliance with the provisions of 35 U.S.C. §112.

35 U.S.C. §103 Rejections

Claims 1 and 4-10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication No. 2004/0003087 to Chambliss et al. ("Chambliss") in view of U.S. Patent Application Publication No. 2004/0054782 to Donze et al ("Donze") and further in view of U.S. Patent No. 6,957,429 to Sekijima et al. ("Sekijima"). This rejection is traversed for the following reasons. Applicants submit that the features of the present invention, as now more clearly recited in claims 1 and 4-10, are not taught or suggested by Chambliss, Donze or Sekijima, whether taken individually or in combination with each other in the manner suggested by the Examiner. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

Amendments were made to the claims to more clearly describe features of the present invention. Specifically, amendments were made to the claims to more clearly recite that the present invention is directed to an information processing system, a control method of an information processing system, and a program to calculate load data in an information processing system as recited, for example, in

independent claims 1, 5-7 and 9.

Claims 1 and 4

The present invention, as recited in claim 1, provides an information processing system. The information processing system includes an information processing apparatus which is used to operate a plurality of applications to request data input or output to or from a storage, and a management host which manages the storage. According to the present invention, the storage includes at least one port and at least one array group including a plurality of disk units. The information processing apparatus accesses, via the at least one port, a virtual area provided by the at least one array group. Also according to the present invention, the storage and the information processing apparatus constitute an access process section for processing an access request from a first application. The access process section includes the at least one port and the at least one array group. Also according to the present invention, the information processing apparatus includes an access monitoring section which monitors the access request from the first application and obtains information about the access request for each of the applications. The management host includes an acceptance section which accepts specification of a second application, the second application being a new application. The management host also includes a current load calculation section, which calculates a first current amount of data of the storage accessed by the first application, using the information obtained by the access monitoring section. Furthermore, the management host includes an estimated load calculation section, which calculates both an estimated amount of data of the storage accessed in the port and an estimated amount of data accessed in the array group, in case of addition of the second application. According to the

present invention, if there is a second current amount of data available to the second application, the estimated load calculation section calculates the estimated amount of data by adding the first current amount of data calculated by the current load calculation section and the second current amount of data available to the second application. Also according to the present invention, if the second current amount of data is not available to the second application, the estimated load calculation section calculates the estimated amount of data by adding a third current amount of data of a third application, the third application having an approximate current amount of data. The management host also includes a load data output section which outputs each of an estimated amount of data in the port and an estimated amount of data in the array group calculated by the estimated load calculation section. According to the present invention, in case the information processing apparatus accesses, via a specific port, the virtual area provided by the array group corresponding to the specific port, the load data output section outputs a combination of available ports and array groups. The prior art does not teach or suggest all of these features.

The above described features of the present invention, as now more clearly recited in the claims, are not taught or suggested by any of the references of record. Specifically, the features are not taught or suggested by either Chambliss, Donze or Sekimima, whether taken individually or in combination with each other.

Chambliss teaches a method for improving performance in a computer storage system by regulating resource requests from clients. However, there is no teaching or suggestion in Chambliss of the information processing system as recited in claim 1 of the present invention.

Chambliss discloses a method and system for optimizing the performance

of a storage system by classifying each client request for resources based on operational limits of the resources and controlling when to submit the request for processing based on service class. The operational limits are determined from performance characteristics of the system resources and from the level of performance guaranteed to each client. By regulating the clients' usage of resources using the resource operational limits, total system performance requirements and guarantees can be achieved.

One feature of the present invention, as recited in claim 1, includes an estimated load calculation section, which calculates both an estimated amount of data of the storage accessed in the port and an estimated amount of data accessed in the array group, in case of addition of the second application. According to the present invention, if there is a second current amount of data available to the second application, the estimated load calculation section calculates the estimated amount of data by adding the first current amount of data calculated by the current load calculation section and the second current amount of data available to the second application. Also according to the present invention, if the second current amount of data is not available to the second application, the estimated load calculation section calculates the estimated amount of data by adding a third current amount of data of a third application, the third application having an approximate current amount of data. Chambliss does not disclose this feature.

For example, Chambliss fails to teach or suggest where if the second current amount of data is not available to the second application, the estimated load calculation section calculates the estimated amount of data by adding a third current amount of data of a third application, the third application having an

approximate current amount of data. As best understood, the Examiner appears to rely upon both Chambliss and Donze for teaching an estimated load calculation section. More specifically, however, on page 5 (last paragraph) of the Office Action, the Examiner does not rely upon Chambliss for teaching where the second current amount of data is not available to the second application, but alleges that Donze teaches this feature. Applicants agree that Chambliss does not teach this feature, and as will be discussed in more detail below, Applicants disagree with the Examiner's assertions Donze that teaches or suggests this feature.

Therefore, Chambliss fails to teach or suggest "an estimated load calculation section which calculates both an estimated amount of data of said storage accessed in said port and an estimated amount of data accessed in said array group, in case of addition of said second application, wherein if there is a second current amount of data available to said second application, said estimated load calculation section calculates the estimated amount of data by adding said first current amount of data calculated by said current load calculation section and said second current amount of data available to said second application, and wherein if said second current amount of data is not available to said second application, said estimated load calculation section calculates the estimated amount of data by adding a third current amount of data of a third application, said third application having an approximate current amount of data" as recited in claim 1.

The above noted deficiencies of Chambliss are not supplied by any of the other references of record, namely Donze, whether taken individually or in combination with each other. Therefore, combining the teachings of Chambliss and Donze in the manner suggested by the Examiner still fails to teach or suggest

the features of the present invention as now more clearly recited in the claims.

Donze teaches a software application domain and storage domain stitching process and method. However, there is no teaching or suggestion in Donze of the information processing system as recited in claim 1 of the present invention.

Donze discloses a method for mapping data path connections. The method includes accessing information representing a data path between a software application and a storage system, where the information is collected from the software application by an agent. The method also includes accessing information representing the data path between the storage system and the software application, where a portion of the information is collected from the storage system by an agent. The method also includes determining connections associated with the data path, and mapping the data path connections to form a connection map.

One feature of the present invention, as recited in claim 1, includes an estimated load calculation section, which calculates both an estimated amount of data of the storage accessed in the port and an estimated amount of data accessed in the array group, in case of addition of the second application. According to the present invention, if there is a second current amount of data available to the second application, the estimated load calculation section calculates the estimated amount of data by adding the first current amount of data calculated by the current load calculation section and the second current amount of data available to the second application. Also according to the present invention, if the second current amount of data is not available to the second application, the estimated load calculation section calculates the estimated amount of data by adding a third current amount of data of a third application, the third application having an approximate current amount of data. Donze does not

disclose this feature.

For example, Donze fails to teach or suggest where if the second current amount of data is not available to the second application, the estimated load calculation section calculates the estimated amount of data by adding a third current amount of data of a third application, the third application having an approximate current amount of data. The Examiner relies upon Donze for teaching this feature, citing paragraphs [0059]-[0060] and Fig. 7, item 136. However, neither the cited text nor any other portion of Donze, teaches or suggests this feature.

As described in the cited text, Donze merely discloses the domain management process 10, which may compute performance, availability, recoverability, cost, and security measure to characterize the selected data path. These characterization measures may also be calculated for any other similarly selected data path, or portion of the software application domain, the storage domain, or a combination of both domains. This is not the same as the present invention. The present invention contemplates, for example, where a user may need to allocated a new volume when a new directory is added to the file system. In this case, the user specifies an application using a storage resource allocation management program. This allocates a new volume. The file system 140 adds a new directory. When the user specifies an application, it is determined that data of this application is used to calculate an estimated load. Alternatively, the user can select an application that differs from the application to be actually used. The selected application can be used to calculate an estimated load. For example, consider a case where there is no load situation data available to the application whose estimated load needs to be calculated. In such case, it is possible to

calculate the estimated load by using load data of an application having an approximate load situation. This is quite different from Donze. Donze does not teach or suggest where no current amount of data is available to an application to be added, and further does not teach or suggest where the current amount of data of another application is used to calculate an estimated load, in the event that no current amount of data is available to the application to be added.

Therefore, Donze fails to teach or suggest “an estimated load calculation section which calculates both an estimated amount of data of said storage accessed in said port and an estimated amount of data accessed in said array group, in case of addition of said second application, wherein if there is a second current amount of data available to said second application, said estimated load calculation section calculates the estimated amount of data by adding said first current amount of data calculated by said current load calculation section and said second current amount of data available to said second application, and wherein if said second current amount of data is not available to said second application, said estimated load calculation section calculates the estimated amount of data by adding a third current amount of data of a third application, said third application having an approximate current amount of data” as recited in claim 1.

The above noted deficiencies of Chambliss in view of Donze are not supplied by any of the other references of record, namely Sekijima, whether taken individually or in combination with each other. Therefore, combining the teachings of Chambliss, Donze and Sekijima in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

Sekijima teaches a service processing apparatus and a service execution

control method. However, there is no teaching or suggestion in Sekijima of the information processing system as recited in claim 1 of the present invention.

Sekijima discloses an apparatus and method that presents a list of applicable services dynamically updated and enables users to specify selective combinations of the services. A client includes an input unit, a display unit, a user authentication unit, a service display and selection unit, a document set display and display unit, and the like. The service display and selection unit creates a list of currently active, applicable services and performs processing for user's service selection. The document set display and selection unit creates a list of documents included in a document set specified by a user and performs processing for user's document selection. In the servers, a service management unit, a selected service execution unit, service providing units, a document information management unit, a document storage unit, and a user information management unit operate respectively.

One feature of the present invention, as recited in claim 1, includes an estimated load calculation section, which calculates both an estimated amount of data of the storage accessed in the port and an estimated amount of data accessed in the array group, in case of addition of the second application. According to the present invention, if there is a second current amount of data available to the second application, the estimated load calculation section calculates the estimated amount of data by adding the first current amount of data calculated by the current load calculation section and the second current amount of data available to the second application. Also according to the present invention, if the second current amount of data is not available to the second application, the estimated load calculation section calculates the estimated amount

of data by adding a third current amount of data of a third application, the third application having an approximate current amount of data. Sekijima does not disclose this feature, and the Examiner does not rely upon Sekijima for teaching this feature.

Therefore, Sekijima fails to teach or suggest “an estimated load calculation section which calculates both an estimated amount of data of said storage accessed in said port and an estimated amount of data accessed in said array group, in case of addition of said second application, wherein if there is a second current amount of data available to said second application, said estimated load calculation section calculates the estimated amount of data by adding said first current amount of data calculated by said current load calculation section and said second current amount of data available to said second application, and wherein if said second current amount of data is not available to said second application, said estimated load calculation section calculates the estimated amount of data by adding a third current amount of data of a third application, said third application having an approximate current amount of data” as recited in claim 1.

Claims 5 and 6

The present invention, as recited in claim 5, and as similarly recited in claim 6, provides an information processing system. The information processing system includes a storage which stores a database and comprises at least one port and at least one array group including a plurality of disk units. The information processing system also includes a plurality of information processing apparatuses which are used to operate a plurality of applications requesting data input/output to/from the storage and access, via the at least one port, a virtual area provided by the at least

one array group. Furthermore, the information processing system includes a management host which manages the storage. According to the present invention, each of the information processing apparatuses includes a database management system which processes an access request from a first application to the database and includes the at least one port and the at least one array group. Each information processing apparatus also includes an access monitoring section which monitors the access request from the first application to the database and obtains information about the access request. Also included in each information processing apparatus is an access information output section which collects information about the access request and adds up the information correspondingly to the first application. According to the present invention, the management host includes an acceptance section which accepts specification of a second application, the second application being a new application. The management host also includes a current load calculation section which calculates a first current amount of data of the storage accessed by the first application, using the information obtained by the access monitoring section. The management host further includes an estimated load calculation section which calculates both an estimated amount of data of the storage accessed in the port and an estimated amount of data accessed in the array group. According to the present invention, if there is a second current amount of data available to the second application, the estimated load calculation section calculates the estimated amount of data by adding the first current amount of data calculated by the current load calculation section and the second current amount of data available to the second application. Also according to the present invention, if the second current amount of data is not available to the second application, the estimated load calculation section

calculates the estimated amount of data by adding a third current amount of data of a third application, the third application having an approximate current amount of data. The management host also includes a load data output section which outputs each of the estimated amount of data in the port and the estimated amount of data in the array group calculated by the estimated load calculation section. According to the present invention, if the information processing apparatus accesses, via a specific port, the virtual area provided by the array group corresponding to the specific port, the load data output section outputs a combination of available ports and array groups. Also included in the management host is a configuration setup section which sets up a change in configuration of the storage based on the estimated amount of data calculated by the estimated load calculation section. The prior art does not teach or suggest all of these features.

The above described features of the present invention, as now more clearly recited in the claims, are not taught or suggested by any of the references of record. Specifically, the features are not taught or suggested by either of Chambliss, Donze or Sekijima, whether taken individually or in combination with each other.

As previously discussed, Chambliss teaches a method for improving performance in a computer storage system by regulating resource requests from clients. However, there is no teaching or suggestion in Chambliss of the information processing system as recited in claims 5 and 6 of the present invention.

One feature of the present invention, as recited in claim 5, and as similarly recited in claim 6, includes an estimated load calculation section which calculates both an estimated amount of data of the storage accessed in the port and an

estimated amount of data accessed in the array group. According to the present invention, if there is a second current amount of data available to the second application, the estimated load calculation section calculates the estimated amount of data by adding the first current amount of data calculated by the current load calculation section and the second current amount of data available to the second application. Also according to the present invention, if the second current amount of data is not available to the second application, the estimated load calculation section calculates the estimated amount of data by adding a third current amount of data of a third application, the third application having an approximate current amount of data. Chambliss does not disclose this feature.

For example, Chambliss fails to teach or suggest where if the second current amount of data is not available to the second application, the estimated load calculation section calculates the estimated amount of data by adding a third current amount of data of a third application, the third application having an approximate current amount of data. As best understood, the Examiner appears to rely upon both Chambliss and Donze for teaching an estimated load calculation section. More specifically, however, on pages 9-10 of the Office Action, the Examiner does not rely upon Chambliss for teaching where the second current amount of data is not available to the second application, but alleges that Donze teaches this feature. Applicants agree that Chambliss does not teach this feature, and as will be discussed in more detail below, Applicants disagree with the Examiner's assertions Donze that teaches or suggests this feature.

Therefore, Chambliss fails to teach or suggest "an estimated load calculation section which calculates both an estimated amount of data of said storage accessed in said port and an estimated amount of data accessed in said

array group, wherein if there is a second current amount of data available to said second application, said estimated load calculation section calculates the estimated amount of data by adding said first current amount of data calculated by said current load calculation section and said second current amount of data available to said second application, and wherein if said second current amount of data is not available to said second application, said estimated load calculation section calculates the estimated amount of data by adding a third current amount of data of a third application, said third application having an approximate current amount of data” as recited in claim 5, and as similarly recited in claim 6.

The above noted deficiencies of Chambliss are not supplied by any of the other references of record, namely Donze, whether taken individually or in combination with each other. Therefore, combining the teachings of Chambliss and Donze in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

As previously discussed, Donze teaches a software application domain and storage domain stitching process and method. However, there is no teaching or suggestion in Donze of the information processing system as recited in claims 5 and 6 of the present invention.

One feature of the present invention, as recited in claim 5, and as similarly recited in claim 6, includes an estimated load calculation section which calculates both an estimated amount of data of the storage accessed in the port and an estimated amount of data accessed in the array group. According to the present invention, if there is a second current amount of data available to the second application, the estimated load calculation section calculates the estimated amount of data by adding the first current amount of data calculated by the current load

calculation section and the second current amount of data available to the second application. Also according to the present invention, if the second current amount of data is not available to the second application, the estimated load calculation section calculates the estimated amount of data by adding a third current amount of data of a third application, the third application having an approximate current amount of data. Donze does not disclose this feature.

For example, as previously discussed, Donze fails to teach or suggest where if the second current amount of data is not available to the second application, the estimated load calculation section calculates the estimated amount of data by adding a third current amount of data of a third application, the third application having an approximate current amount of data. The Examiner relies upon Donze for teaching this feature, citing paragraphs [0059]-[0060] and Fig. 7, item 136. However, neither the cited text nor any other portion of Donze, teaches or suggests this feature.

As described in the cited text, Donze merely discloses the domain management process 10, which may compute performance, availability, recoverability, cost, and security measure to characterize the selected data path. These characterization measures may also be calculated for any other similarly selected data path, or portion of the software application domain, the storage domain, or a combination of both domains. This is not the same as the present invention. The present invention contemplates, for example, where a user may need to allocated a new volume when a new directory is added to the file system. In this case, the user specifies an application using a storage resource allocation management program. This allocates a new volume. The file system 140 adds a new directory. When the user specifies an application, it is determined that data of

this application is used to calculate an estimated load. Alternatively, the user can select an application that differs from the application to be actually used. The selected application can be used to calculate an estimated load. For example, consider a case where there is no load situation data available to the application whose estimated load needs to be calculated. In such case, it is possible to calculate the estimated load by using load data of an application having an approximate load situation. This is quite different from Donze. Donze does not teach or suggest where no current amount of data is available to an application to be added, and further does not teach or suggest where the current amount of data of another application is used to calculate an estimated load, in the event that no current amount of data is available to the application to be added.

Therefore, Donze fails to teach or suggest “an estimated load calculation section which calculates both an estimated amount of data of said storage accessed in said port and an estimated amount of data accessed in said array group, wherein if there is a second current amount of data available to said second application, said estimated load calculation section calculates the estimated amount of data by adding said first current amount of data calculated by said current load calculation section and said second current amount of data available to said second application, and wherein if said second current amount of data is not available to said second application, said estimated load calculation section calculates the estimated amount of data by adding a third current amount of data of a third application, said third application having an approximate current amount of data” as recited in claim 5, and as similarly recited in claim 6.

The above noted deficiencies of Chambliss in view of Donze are not supplied by any of the other references of record, namely Sekijima, whether taken

individually or in combination with each other. Therefore, combining the teachings of Chambliss, Donze and Sekijima in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

As previously discussed, Sekijima teaches a service processing apparatus and a service execution control method. However, there is no teaching or suggestion in Sekijima of the information processing system as recited in claims 5 and 6 of the present invention.

One feature of the present invention, as recited in claim 5, and as similarly recited in claim 6, includes an estimated load calculation section which calculates both an estimated amount of data of the storage accessed in the port and an estimated amount of data accessed in the array group. According to the present invention, if there is a second current amount of data available to the second application, the estimated load calculation section calculates the estimated amount of data by adding the first current amount of data calculated by the current load calculation section and the second current amount of data available to the second application. Also according to the present invention, if the second current amount of data is not available to the second application, the estimated load calculation section calculates the estimated amount of data by adding a third current amount of data of a third application, the third application having an approximate current amount of data. Sekijima does not disclose this feature, and the Examiner does not rely upon Sekijima for teaching this feature.

Therefore, Sekijima fails to teach or suggest “an estimated load calculation section which calculates both an estimated amount of data of said storage accessed in said port and an estimated amount of data accessed in said array

group, wherein if there is a second current amount of data available to said second application, said estimated load calculation section calculates the estimated amount of data by adding said first current amount of data calculated by said current load calculation section and said second current amount of data available to said second application, and wherein if said second current amount of data is not available to said second application, said estimated load calculation section calculates the estimated amount of data by adding a third current amount of data of a third application, said third application having an approximate current amount of data” as recited in claim 5, and as similarly recited in claim 6.

Claims 7 and 8

The present invention, as recited in claim 7, provides a control method of an information processing system, where the system includes an information processing apparatus, which is used to operate a plurality of applications to request data input or output to or from a storage, and a management host that manages the storage. According to the present invention, the storage includes at least one port and at least one array group including a plurality of disk units. Also according to the present invention, the information processing apparatus accesses, via the at least one port, a virtual area provided by the at least one array group. The method includes steps of monitoring an access request from each of the applications, and obtaining information about the access request for each of the applications. The method also includes calculating a first current amount of data of the storage accessed by each of the applications, using information about the obtained access request for each of the applications, respectively. Also included in the method is a step of accepting specification of a new application.

The method further includes calculating an estimated amount of data of the storage accessed for each the applications, in case of addition of the new application, and calculating the estimated amount of data by adding the first current amount of data and a second current amount data of the new application, if there is a second current amount of data available to the new application.

Furthermore, the method includes calculating the estimated amount of data by adding a third current amount of data of a third application, the third application having an approximate current amount of data, if the second current amount of data is not available to the second application. Even further, the method includes calculating each of an estimated amount of data in the port and an estimated amount of data in the array group in case of addition of the new application based on the calculated current data and information about the obtained access request. The method further includes outputting the calculated each of the estimated amount of data in the port and the estimated amount of data in array group, and outputting a combination of available ports and array groups, in case the information processing apparatus accesses, via a specific port, the virtual area provided by an array group corresponding to the specific port. The prior art does not teach or suggest all of these features.

The above described features of the present invention, as now more clearly recited in the claims, are not taught or suggested by any of the references of record. Specifically, the features are not taught or suggested by either Chambliss, Donze or Sekijima, whether taken individually or in combination with each other.

As previously discussed, Chambliss teaches a method for improving performance in a computer storage system by regulating resource requests from clients. However, there is no teaching or suggestion in Chambliss of the control

method of an information processing system, as recited in claim 7 of the present invention.

Features of the present invention, as recited in claim 7, include calculating the estimated amount of data by adding the first current amount of data and a second current amount data of the new application, if there is a second current amount of data available to the new application, and calculating the estimated amount of data by adding a third current amount of data of a third application, the third application having an approximate current amount of data, if the second current amount of data is not available to the second application. As previously discussed, Chambliss does not disclose this feature.

For example, Chambliss fails to teach or suggest where if the second current amount of data is not available to the second application, the estimated amount of data is calculated by adding a third current amount of data of a third application, the third application having an approximate current amount of data. As best understood, the Examiner appears to rely upon both Chambliss and Donze for teaching an estimated load calculation section. More specifically, however, the Examiner does not rely upon Chambliss for teaching where the second current amount of data is not available to the second application, but alleges that Donze teaches this feature. Applicants agree that Chambliss does not teach this feature, and as will be discussed in more detail below, Applicants disagree with the Examiner's assertions Donze that teaches or suggests this feature.

Therefore, Chambliss fails to teach or suggest "calculating the estimated amount of data by adding said first current amount of data and a second current amount data of the new application, if there is a second current amount of data

available to said new application” and “calculating the estimated amount of data by adding a third current amount of data of a third application, said third application having an approximate current amount of data, if said second current amount of data is not available to said second application” as recited in claim 7.

The above noted deficiencies of Chambliss are not supplied by any of the other references of record, namely Donze, whether taken individually or in combination with each other. Therefore, combining the teachings of Chambliss and Donze in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

As previously discussed, Donze teaches a software application domain and storage domain stitching process and method. However, there is no teaching or suggestion in Donze of the control method of an information processing system, as recited in claim 7 of the present invention.

Features of the present invention, as recited in claim 7, include calculating the estimated amount of data by adding the first current amount of data and a second current amount data of the new application, if there is a second current amount of data available to the new application, and calculating the estimated amount of data by adding a third current amount of data of a third application, the third application having an approximate current amount of data, if the second current amount of data is not available to the second application. As previously discussed, Donze does not disclose this feature.

For example, Donze fails to teach or suggest where if the second current amount of data is not available to the second application, the estimated amount of data is calculated by adding a third current amount of data of a third application, the third application having an approximate current amount of data. The Examiner

relies upon Donze for teaching this feature, citing paragraphs [0059]-[0060] and Fig. 7, item 136. However, neither the cited text nor any other portion of Donze, teaches or suggests this feature.

As described in the cited text, Donze merely discloses the domain management process 10, which may compute performance, availability, recoverability, cost, and security measure to characterize the selected data path. These characterization measures may also be calculated for any other similarly selected data path, or portion of the software application domain, the storage domain, or a combination of both domains. This is not the same as the present invention. The present invention contemplates, for example, where a user may need to allocated a new volume when a new directory is added to the file system. In this case, the user specifies an application using a storage resource allocation management program. This allocates a new volume. The file system 140 adds a new directory. When the user specifies an application, it is determined that data of this application is used to calculate an estimated load. Alternatively, the user can select an application that differs from the application to be actually used. The selected application can be used to calculate an estimated load. For example, consider a case where there is no load situation data available to the application whose estimated load needs to be calculated. In such case, it is possible to calculate the estimated load by using load data of an application having an approximate load situation. This is quite different from Donze. Donze does not teach or suggest where no current amount of data is available to an application to be added, and further does not teach or suggest where the current amount of data of another application is used to calculate an estimated load, in the event that no current amount of data is available to the application to be added.

Therefore, Donze fails to teach or suggest “calculating the estimated amount of data by adding said first current amount of data and a second current amount data of the new application, if there is a second current amount of data available to said new application” and “calculating the estimated amount of data by adding a third current amount of data of a third application, said third application having an approximate current amount of data, if said second current amount of data is not available to said second application” as recited in claim 7.

The above noted deficiencies of Chambliss in view of Donze are not supplied by any of the other references of record, namely Sekijima, whether taken individually or in combination with each other. Therefore, combining the teachings of Chambliss, Donze and Sekijima in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

As previously discussed, Sekijima teaches a service processing apparatus and a service execution control method. However, there is no teaching or suggestion in Sekijima of the control method of an information processing system, as recited in claim 7 of the present invention.

Features of the present invention, as recited in claim 7, include calculating the estimated amount of data by adding the first current amount of data and a second current amount data of the new application, if there is a second current amount of data available to the new application, and calculating the estimated amount of data by adding a third current amount of data of a third application, the third application having an approximate current amount of data, if the second current amount of data is not available to the second application. As previously discussed, Sekijima does not disclose this feature, and the Examiner does not rely

upon Sekijima for teaching this feature.

Therefore, Sekijima fails to teach or suggest “calculating the estimated amount of data by adding said first current amount of data and a second current amount data of the new application, if there is a second current amount of data available to said new application” and “calculating the estimated amount of data by adding a third current amount of data of a third application, said third application having an approximate current amount of data, if said second current amount of data is not available to said second application” as recited in claim 7.

Claims 9 and 10

The present invention, as recited in claim 9, provides a machine readable medium tangibly embodying at least one sequence of instruction for calculating load data in an information processing system. The system includes an information processing apparatus, which is used to operate a plurality of applications to request data input or output to or from a storage, and a management host which manages the storage. The storage includes at least one port and at least one array group including a plurality of disk units. The information processing apparatus accesses, via the at least one port, a virtual area provided by the at least one array group. According to the present invention, the sequence of instruction, when executed, causes the management host to monitor an access request from a first application and obtaining information about the access request for each of the applications. The sequence of instruction also causes the management host to calculate a first current amount of data of the storage accessed by the first application, using information about the obtained access request. The sequence of instruction further causes the management host to

accept specification of a second application, the second application being a new application. Furthermore, the sequence of instruction causes the management host to calculate an estimated amount of data of the storage accessed, in case of addition of the new application. Even further, the sequence of instruction causes the management host to calculate the estimated amount of data by adding the first current amount of data and a second current amount of data of the second application, if there is a second current amount of data available to the second application. Even further, the sequence of instruction causes the management host to calculate the estimated amount of data by adding a third current amount of data of a third application, the third application having an approximate current amount of data, if the second current amount of data is not available to the second application. The sequence of instruction also causes the management host to calculate both an estimated amount of data in the port and an estimated amount of data in the array group, in case of addition of the second application. Even further, the sequence of instruction causes the management host to output the calculated estimated amount of data in the port and the estimated amount of data in the array group. Also in the present invention, the sequence of instruction causes the management host to output a combination of available ports and array groups, in case the information processing apparatus accesses, via a specific port, the virtual area provided by an array group corresponding to the specific port. The prior art does not teach or suggest all of these features.

The above described features of the present invention, as now more clearly recited in the claims, are not taught or suggested by any of the references of record. Specifically, the features are not taught or suggested by either Chambliss or Sekijima, whether taken individually or in combination with each other.

As previously discussed, Chambliss teaches a method for improving performance in a computer storage system by regulating resource requests from clients. However, there is no teaching or suggestion in Chambliss of the machine readable medium tangibly embodying at least one sequence of instruction for calculating load data in an information processing system as recited in claim 9 of the present invention.

One feature of the present invention, as recited in claim 9, includes where the sequence of instruction causes the management host to calculate the estimated amount of data by adding the first current amount of data and a second current amount of data of the second application, if there is a second current amount of data available to the second application. Even further, the sequence of instruction causes the management host to calculate the estimated amount of data by adding a third current amount of data of a third application, the third application having an approximate current amount of data, if the second current amount of data is not available to the second application. As previously discussed, Chambliss does not disclose this feature.

Therefore, Chambliss fails to teach or suggest “calculate the estimated amount of data by adding said first current amount of data and a second current amount of data of the second application, if there is a second current amount of data available to said second application” and “calculate the estimated amount of data by adding a third current amount of data of a third application, said third application having an approximate current amount of data, if said second current amount of data is not available to said second application” as recited in claim 9.

The above noted deficiencies of Chambliss are not supplied by any of the other references of record, namely Donze, whether taken individually or in

combination with each other. Therefore, combining the teachings of Chambliss and Donze in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

As previously discussed, Donze teaches a software application domain and storage domain stitching process and method. However, there is no teaching or suggestion in Donze of the machine readable medium tangibly embodying at least one sequence of instruction for calculating load data in an information processing system as recited in claim 9 of the present invention.

One feature of the present invention, as recited in claim 9, includes where the sequence of instruction causes the management host to calculate the estimated amount of data by adding the first current amount of data and a second current amount of data of the second application, if there is a second current amount of data available to the second application. Even further, the sequence of instruction causes the management host to calculate the estimated amount of data by adding a third current amount of data of a third application, the third application having an approximate current amount of data, if the second current amount of data is not available to the second application. As previously discussed, Donze does not disclose this feature.

For example, Donze fails to teach or suggest where if the second current amount of data is not available to the second application, the estimated amount of data is calculated by adding a third current amount of data of a third application, the third application having an approximate current amount of data. The Examiner relies upon Donze for teaching this feature, citing paragraphs [0059]-[0060] and Fig. 7, item 136. However, neither the cited text nor any other portion of Donze, teaches or suggests this feature.

As described in the cited text, Donze merely discloses the domain management process 10, which may compute performance, availability, recoverability, cost, and security measure to characterize the selected data path. These characterization measures may also be calculated for any other similarly selected data path, or portion of the software application domain, the storage domain, or a combination of both domains. This is not the same as the present invention. The present invention contemplates, for example, where a user may need to allocated a new volume when a new directory is added to the file system. In this case, the user specifies an application using a storage resource allocation management program. This allocates a new volume. The file system 140 adds a new directory. When the user specifies an application, it is determined that data of this application is used to calculate an estimated load. Alternatively, the user can select an application that differs from the application to be actually used. The selected application can be used to calculate an estimated load. For example, consider a case where there is no load situation data available to the application whose estimated load needs to be calculated. In such case, it is possible to calculate the estimated load by using load data of an application having an approximate load situation. This is quite different from Donze. Donze does not teach or suggest where no current amount of data is available to an application to be added, and further does not teach or suggest where the current amount of data of another application is used to calculate an estimated load, in the event that no current amount of data is available to the application to be added.

Therefore, Donze fails to teach or suggest "calculate the estimated amount of data by adding said first current amount of data and a second current amount of data of the second application, if there is a second current amount of data

available to said second application” and “calculate the estimated amount of data by adding a third current amount of data of a third application, said third application having an approximate current amount of data, if said second current amount of data is not available to said second application” as recited in claim 9.

The above noted deficiencies of Chambliss in view of Donze are not supplied by any of the other references of record, namely Sekijima, whether taken individually or in combination with each other. Therefore, combining the teachings of Chambliss, Donze and Sekijima in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

As previously discussed, Sekijima teaches a service processing apparatus and a service execution control method. However, there is no teaching or suggestion in Sekijima of the machine readable medium tangibly embodying at least one sequence of instruction for calculating load data in an information processing system as recited in claim 9 of the present invention.

One feature of the present invention, as recited in claim 9, includes where the sequence of instruction causes the management host to calculate the estimated amount of data by adding the first current amount of data and a second current amount of data of the second application, if there is a second current amount of data available to the second application. Even further, the sequence of instruction causes the management host to calculate the estimated amount of data by adding a third current amount of data of a third application, the third application having an approximate current amount of data, if the second current amount of data is not available to the second application. As previously discussed, Sekijima does not disclose this feature.

Therefore, Sekijima fails to teach or suggest “calculate the estimated amount of data by adding said first current amount of data and a second current amount of data of the second application, if there is a second current amount of data available to said second application” and “calculate the estimated amount of data by adding a third current amount of data of a third application, said third application having an approximate current amount of data, if said second current amount of data is not available to said second application” as recited in claim 9.

Each of Chambliss, Donze and Sekijima suffer from the same deficiencies, relative to the features of the present invention, as recited in the claims.

Therefore, combining the teachings of Chambliss, Donze and Sekijima in the manner suggested by the Examiner does not render obvious the features of the present invention as now more clearly recited in the claims. Accordingly, reconsideration and withdrawal of the 35 U.S.C. §103(a) rejection of claims 1 and 4-10 as being unpatentable over Chambliss in view of Donze, and further in view of Sekijima are respectfully requested.

The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references used in the rejection of claims 1 and 4-10.

In view of the foregoing amendments and remarks, Applicants submit that claims 1 and 4-10 are in condition for allowance. Accordingly, early allowance of claims 1 and 4-10 is respectfully requested.

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of Mattingly, Stanger, Malur & Brundidge, P.C., Deposit Account No. 50-1417 (referencing Attorney Docket No. 1213.43685X00).

Respectfully submitted,
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